

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,454	12/28/2001	Eleanor P. Rabadam	42P12397	1055

8791 7590 07/11/2003

BLAKELY SOKOLOFF TAYLOR & ZAFMAN  
12400 WILSHIRE BOULEVARD, SEVENTH FLOOR  
LOS ANGELES, CA 90025

EXAMINER

NGUYEN, THINH T

ART UNIT PAPER NUMBER

2818

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Appli ation No.

10/039,454

Applicant(s)

RABADAM ET AL.

Examiner

Thinh T Nguyen

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) ☐ Other: \_\_\_\_\_

## DETAILED OFFICE ACTION

1. Claims 1-13 are pending in the application. Since the applicants Cancel Claims 14-21 (page 10 of the amendment line 2 paper No 10). **Claim 14 is not pending** as mentioned by the applicants in the remarks on page 14 and in the conclusion on page 18 of papers No 10.

Claim 14 is a method claim and has been cancelled by the applicant in response to The restriction requirement by the Office.

2. In response to Applicant 's Amendment (paper no 10) the rejections of claim 1-13 in the Office Action on 11/29/2003 ( paper no 8) is withdrawn. However, after a careful review of the old references , newly found references and applicants' amendment in paper no 10; those claims are subjected to new rejections and objections.

### ***Claims Objection***

3. Claims 1 is objected to since the applicants fail to describe the first surface and the second surface in the specification and the relationship between the first surface and the second surface. The relationship between the first surface and the second surface is very important to distinguish the invention with prior art since the first surface and the second surface can be on the same side of the substrate with different elevation or they can at an angle with each other on a flexible substrate.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b/e) that form the basis for the rejections under this section made in this office action.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 1,2, 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Berney (U.S. Patent 5703395) or Lin (US patent 5239198).

**REGARDING CLAIM 1,2**

Berney et al. disclose a non-volatile memory package (column 4 lines 28-29, fig 2) comprising: a substrate ( fig 2 reference 3) having a first surface and a second surface; an integrated circuit die including a memory array ( fig 2 reference 2 )mounted to the first surface of the substrate, and a passive component ( fig 2 reference 20, column 5 lines 29-33) mounted to the second surface of substrate.

Similarly Lin et al. (fig 6, fig 7, column 6 lines 57-62, claim 20) disclose the same invention.

**REGARDING CLAIM 12**

Barney disclose a memory semiconductor package with passive component( fig 2

Art Unit: 2818

reference 20, column 5 lines 29-33) and resistor and capacitor are inherently passive component.

Similarly Lin et al. (fig 6, fig 7, column 6 lines 57-62, claim 20) disclose the same invention.

6. Claims 3,4,5,9,11 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin et al. (US patent 5239198)

REGARDING CLAIM 3

Lin et al. (fig 6, fig 7 column 6 lines 57-62) show an array of solder bumps mounted to the substrate.

REGARDING CLAIM 4,5

Lin et al. (fig. 7) show the passive component is located centrally within the array of solder balls and the solder balls are higher than the passive component.

REGARDING CLAIM 9

Lin et al. (column 3 line 61), teach the use of epoxy glue.

REGARDING CLAIM 11

Lin et al. (the abstract, fig 6) teach the mounting of passive component with a conductive material.

8. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Berney (US patent 5703395).

Berney (column 4 line 29) show a die of EEPROM which is flash memory.

*Claim Rejections - 35 USC § 103*

9. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barney et al.(US patent 5703395) in view of further remark.

REGARDING CLAIM 9

Although Barney et al. do not specifically teach the embedding of a voltage regulator Barney et al. do mention (column 5 line 32) that auxiliary chip 20 can be a control circuit and voltage regulator are inherently a control circuit and this disclosure make claim 9 obvious over Barney et al.

11. Claims 7,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US patent 5239198) in view of Fukutomi et al.(US patent 6268648).

REGARDING CLAIM 7,8

Lin et al. disclose all the invention including solder balls higher than the passive component ( fig 6, fig 7, claim 20) except for carving a cavity into the middle of the substrate for components, Fukutomi, however teach how to make a substrate structure with cavity ( fig 1, fig 3). It would have been obvious to one of ordinary skill in the art the time the invention was made to complement the teachings of Lin et al. with the teachings of

Fukutomi et al. in order to come up with the invention of claim 7,8.

The reasoning is as follows:

A person of ordinary skill in the art would have been motivated to complement the teachings of Lin et al. with the teachings of Fukutomi et al. in order to achieve high reliability and decrease in size as suggested by Fukutomi et al. in the abstract.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US patent 5239198) in view of further remark.

Lin et al. ( fig 6, fig 7, claim 20, column 3 line 61) disclose all the invention except for the thickness of the epoxy glue layer. It would have been obvious to one of ordinary skill in the art the time the invention was made to use the teachings of Lin et al. and then select the right thickness of epoxy in order to come up with claim 10 since it has been held that discovering an optimum value of a resulted effective variable involves only routine skill in the art.

13. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

14. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).



Art Unit: 2818

### CONCLUSION

15. The prior arts made of record and not relied upon are considered pertinent to applicant disclosure: Taguchi (US patent 5097303) disclose an on-chip voltage regulator and semiconductor memory device using the same; Aghazadeh et al. (US patent 5289337) disclose a head spreader for cavity down multi-chip module with flip chip.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose phone number is (703) 305-0421. The Examiner can normally be reached on Monday to Friday from 8.30 A.M. to 5.00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, David C. Nelms can be reached on (703) 308-4910. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

**Thinh T. Nguyen**

Art Unit 2818

  
**HOAI HO**  
**PRIMARY EXAMINER**